



PATENT COOPERATION TREATY

PCT

Rec'd PCT/PTO 11 OCT 2005

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference V51014WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2003/003928	International filing date (day/month/year) 27 November 2003 (27.11.2003)	Priority date (day/month/year) 29 November 2002 (29.11.2002)
International Patent Classification (IPC) or national classification and IPC F16J 1/16		
Applicant MAHLE GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 24 June 2004 (24.06.2004)	Date of completion of this report 31 January 2005 (31.01.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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I. Basis of the report

1. With regard to the elements of the international application:*

the international application as originally filed

the description:

pages

1-5

pages

, as originally filed

pages

, filed with the demand

, filed with the letter of _____

the claims:

pages

, as originally filed

pages

, as amended (together with any statement under Article 19

pages

, filed with the demand

1-4

, filed with the letter of 13 December 2004 (13.12.2004)

the drawings:

pages

1/1

, as originally filed

pages

, filed with the demand

the sequence listing part of the description:

pages

, as originally filed

pages

, filed with the demand

pages

, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

the language of publication of the international application (under Rule 48.3(b)).

the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

the description, pages _____

the claims, Nos. _____

the drawings, sheets/fig _____

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-4	YES
	Claims		NO
Inventive step (IS)	Claims	1-4	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-4	YES
	Claims		NO

2. Citations and explanations

1 In regard to claim 1:

- 1.1 Claim 1 satisfies the requirements of PCT Article 33(2) to (4) in respect of novelty, inventive step and industrial applicability.
- 1.2 None of the documents cited in the search report or acknowledged in the introductory part of the description indicates the features of independent claim 1 in their entirety, and so the subject matter of claim 1 is novel.
- 1.3 The documents cited in the search report do not give a person skilled in the art any incentive, with a piston as per FR-1 239 739,
- to structure the lubrication groove with a central region whose groove base runs parallel to the longitudinal axis of the pin bore and, in relation to the inner surface of the pin bore, has a depth of less than 100 µm,

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- to design the groove base and pin axis so as to define an acute angle of less than 3°.

This measure is the result of a step that does not represent a logical development of the cited prior art. The piston according to claim 1 therefore involves an inventive step.

1.4 The subject matter of claim 1 can be made and used and therefore also has industrial applicability.

2 In regard to claims 2-4

2.1 Dependent claims 2-4 comprise useful and non-obvious embodiments of a piston according to claim 1 and thus also meet the requirements for novelty, inventive step and industrial applicability under PCT Article 33(2) to (4).